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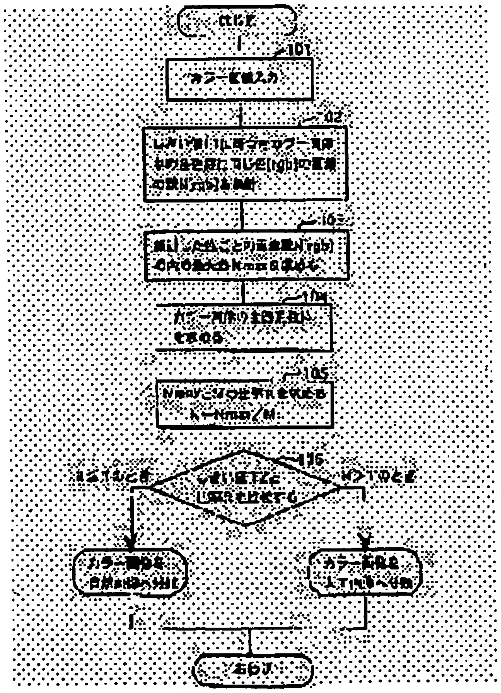
(54) METHOD AND DEVICE FOR CLASSIFYING COLOR IMAGE AND RECORD MEDIUM RECORDED WITH THIS METHOD



(57)Abstract:

PROBLEM TO BE SOLVED: To provide a method and a device which appropriately classifies color images into a natural image and an artificial image for color image processing such as conversion of a color image into a black-and-white image.

SOLUTION: In an artificial image, there are relatively many pixels which have the same color completely such as the colors of characters and graphic forms and a background color even though a gradation part exists. On the other hand, in a natural image, since the way illumination light strikes subtly differs even though there are parts that have similar colors, each pixel becomes a color that is subtly different and there is a small possibility that a wide area that has the completely same color exists. First, the number of all pixels which have the same color in a color image is accumulated (102) by utilizing the property. Next, the ratio R of the pixel number of a color that has the most pixels to the number of all of the pixels of an entire image (103 to 105). When the ratio R is larger than threshold T2 that is previously set, the color image is classified to an artificial image, and when it is smaller, it is classified to a natural image.

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CLAIMS

[Claim(s)]
[Claim 1] Total the number of the pixels in which the color information on each pixel in an image has the value which shows the same color based on the threshold T1 set up beforehand from the color picture expressed with the numeric data for every color, and it asks for the number of same color pixels. Calculate the maximum of said number of same color pixels, and it asks for the total number of pixels of said color picture. The color picture classification approach characterized by what it asks for the ratio of the maximum of said number of same color pixels to the total number of pixels of said color picture, and a color picture is classified for based on the comparison result of said ratio and the threshold T2 set up beforehand.
[Claim 2] The procedure of totaling the number of the pixels in which the color information on each pixel in an image has the value which shows the same color based on the threshold T1 set up beforehand from the color picture expressed with the numeric data for every color, and asking for the number of same color pixels, The procedure of calculating the maximum of said number of same color pixels, and the procedure of asking for the total number of pixels of said color picture, The procedure of asking for the ratio of the maximum of said number of same color pixels to the total number of pixels of said color picture, The record medium which recorded the color picture classification approach characterized by what the program for making a computer perform the procedure of classifying a color picture based on the comparison result of said ratio and the threshold T2 set up beforehand was recorded for on the medium which can read this computer.
[Claim 3] A means to input the color picture as which the color information on each pixel in an image was expressed with the numeric data, A means to total the number of pixels with the value which shows the same color based on the threshold T1 set up beforehand from said inputted color picture for every color, and to ask for the number of same color pixels, A means to calculate the maximum of said number of same color pixels, and a means to ask for the total number of pixels of said inputted color picture, Color picture classification equipment characterized by having a means to compare a means to ask for the ratio of the maximum of said number of same color pixels to the total number of pixels of said color picture with said ratio and the threshold T2 set up beforehand, and to classify said inputted color picture.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the approach and equipment which classify the image (it is called an artificial image) which men, such as an image (it is called a natural image), and an alphabetic character, a graphic form in which the color picture as which the color information on each pixel in an image was expressed with the numeric data photoed the actual sight with the camera, drew.
[0002]
[Description of the Prior Art] This kind of the color picture classification approach or equipment is needed in order to perform effectively processing which deletes color information from a color picture and is changed into monochrome image since a color picture is outputted to the equipment which can display or print only black and white.
[0003] for example, red (R) -- green -- the most general art changed into monochrome image from the color picture which is expressing the color of 1 pixel in the combination (R, G, B) of the value of (G) and each blue (B) color element is the approach of calculating brightness (Y) by the following fixed formulas from color information (R, G, B), and using as monochrome image with the value of the brightness.
[0004]
Although $Y=0.299R+0.587G+0.114B$, however such a simple approach have **** good for a natural image, if a color picture including an alphabetic character or a graphic form is changed into monochrome image by this approach, in spite of a different color, it is the same, or becomes the value of very near brightness, and may be changed into monochrome image with it difficult [to decipher the contents]. That is, since it is required from a natural image in many cases that an artificial image can decipher the alphabetic character contained in it and a graphic form, it is necessary to use the art to which monochrome image transformation processing was also suitable for the artificial image. In order to realize this, it is necessary to classify appropriately whether it is the artificial image which includes an alphabetic character and a graphic form for whether the inputted color picture is a natural image.
[0005] As a conventional approach a color picture classifies a natural image or an artificial image, the number of the colors currently used in the color picture is totaled, and there is the approach of classifying with a natural image, when the number is larger than the threshold defined beforehand, and classifying with an artificial image, when small. This approach is an approach of using the property in which there is probably only a small number of color in the artificial image which human being generally draws to very many colors existing by shading which changes smoothly into a natural image comparatively.
[0006]
[Problem(s) to be Solved by the Invention] However, the image which includes an alphabetic character and a graphic form using a computer can be easily drawn now, and smooth gradation can be easily added now into an image by computer in recent years. The color picture containing such smooth gradation will contain the color from which many differ very much, and cannot classify appropriately

simply whether it is a natural image and whether it is an artificial image only according to the number of the colors in a color picture. For example, drawing 4 is the graph which totaled the number of the colors which exist in those color pictures about some the artificial images and natural images of a color. An inclination rough in the number of the colors which exist in an image by the natural image and the artificial image like drawing 4 has high possibility of carrying out the classification which the image which cannot distinguish a certain thing also has and was mistaken by the classification of the color picture by this approach.

[0007] This invention solves this problem and makes it a technical problem to offer the approach and equipment with which a color picture classifies a natural image or an artificial image appropriately for color picture processing like transform processing from a color picture to monochrome image.

[0008]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, the color picture classification approach by this invention Total the number of the pixels in which the color information on each pixel in an image has the value which shows the same color based on the threshold T1 set up beforehand from the color picture expressed with the numeric data for every color, and it asks for the number of same color pixels. The maximum of said number of same color pixels is calculated, and it asks for the total number of pixels of said color picture, asks for the ratio of the maximum of said number of same color pixels to the total number of pixels of said color picture, and is characterized by classifying a color picture based on the comparison result of said ratio and the threshold T2 set up beforehand.

[0009] The procedure of the above-mentioned color picture classification approach by this invention totaling the number of the pixels in which the color information on each pixel in an image has the value which shows the same color based on the threshold T1 set up beforehand from the color picture expressed with the numeric data for every color, and asking for the number of same color pixels, The procedure of calculating the maximum of said number of same color pixels, and the procedure of asking for the total number of pixels of said color picture, The procedure of asking for the ratio of the maximum of said number of same color pixels to the total number of pixels of said color picture, As a program for performing a computer, the procedure of classifying a color picture based on the comparison result of said ratio and the threshold T2 set up beforehand is recordable on the record medium which can read this computer.

[0010] In order to solve the above-mentioned technical problem, moreover, the color picture classification equipment by this invention A means to input the color picture as which the color information on each pixel in an image was expressed with the numeric data, A means to total the number of pixels with the value which shows the same color based on the threshold T1 set up beforehand from said inputted color picture for every color, and to ask for the number of same color pixels, A means to calculate the maximum of said number of same color pixels, and a means to ask for the total number of pixels of said inputted color picture, It is characterized by having a means to compare a means to ask for the ratio of the maximum of said number of same color pixels to the total number of pixels of said color picture with said ratio and the threshold T2 set up beforehand, and to classify said inputted color picture.

[0011] In an artificial image, even if there is a gradation part, comparatively many pixels which have the completely same color like an alphabetic character, the color of the graphic form itself, or the color of a background will exist compared with the area of the whole image in many cases. On the other hand, since in the case of a natural image how depending on which the illumination light hits differs delicately even if there is a part into which the same color as a metaphor spread, each pixel of the part serves as a delicately different color, and possibility that the field where the completely same color is large exists in a natural image as a result becomes low. In this invention, it is not the number of the colors in a color picture using such a property. Total the number of pixels with the same color for every color, and when the rate of the number of pixels of a color with most pixels to the number of pixels of the whole image is larger than the threshold set up beforehand, the color picture in an artificial image When small, by classifying into a natural image, a color picture is enabled to classify a natural image or an artificial

image appropriately.
[0012]
[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained to a detail using drawing.
[0013] The flow chart of the example of 1 operation gestalt as the approach of this invention is shown in [example 1 of operation gestalt] drawing 1 .
[0014] The color picture classification approach by this invention is concretely explained using drawing 1 . In addition, in order to simplify explanation, a color picture presupposes that the color of 1 pixel is expressed in the combination (R, G, B) of the value of red (R), green (G), and each blue (B) color element.
[0015] (1) Input the color picture as which the color information on each pixel in an image was expressed with the numeric data (step 101).
[0016] (2) several [of the pixel judged in a threshold T1 based on the threshold T1 set up beforehand by carrying out counting of each pixel in a color picture about the color as follows to be the same color [rgb]] -- total N [rgb] for every color (step 102).
[0017] if the color of a certain pixel p in a color picture is set to (Rp, Gp, Bp) -- **Rp-r** -- < -- T1 and **Gp-g** -- < -- T1 and **Bp-b** -- < -- the value of N [rgb] is increased +one at the time of T1.
[0018] In addition, **Rp-r** etc. expresses the absolute value of the value of Rp-r.
[0019] (3) Calculate Maximum Nmax out of the several Ns pixel [rgb] for every color which totaled (step 103).
[0020] (4) Ask for the total number M of pixels of a color picture (step 104).
[0021] (5) Ask for the ratio R of the maximum Nmax of the number of same color pixels to the total number M of pixels as follows (step 105).
[0022] R=Nmax/M.
[0023] (6) Compare the threshold T2 and ratio R which were set up beforehand, and classify a color picture as follows (step 106).
[0024] At the time of R>T2, a color picture is classified into an artificial image and a color picture is classified into a natural image at the time of R<=T2.
[0025] in addition, the equipment according to memory and it required in case this invention processes the equipment which inputs a color picture, and a color picture -- and -- final -- a classification result -- a display -- or Based on the equipment according to the computer which was equipped with equipments, such as a display to output, and was equipped with the central processing unit which controls these hard disks, memory, a display, etc. based on the procedure which was able to be defined beforehand, or it It is possible to realize by giving and performing [control and] the object according to the processing program which described processing in the example of an operation gestalt shown by drawing 1 the approach thru/or the algorithm, or it to this computer. Here, in case a computer performs the object according to this processing program or it, it may be stored in the storage according to the floppy disk (FD) and magneto-optic disk (MO) which can perform read-out, and it.
[0026] The block diagram of the example of 1 operation gestalt as equipment of this invention is shown in [example 2 of operation gestalt] drawing 2 . 201 -- a color picture input means and 202 -- the number total means of same color pixels, and 203 -- the maximum extract means of the number of same color pixels, and 204 -- the total number of pixels -- counting -- as for a means and 205, a ratio count means and 206 are ratio comparison means.
[0027] Actuation of the color picture classification equipment by this invention is concretely explained using drawing 2 . In addition, in order to simplify explanation, a color picture presupposes that the color of 1 pixel is expressed in the combination (R, G, B) of the value of red (R), green (G), and each blue (B) color element.
[0028] First, a color picture is inputted with the color picture input means 201 of drawing 2 . Next, severalNs [rgb] of the pixel judged in the threshold T1 set up beforehand by the number total means 202 of same color pixels to be the same color [rgb] are totaled for every color as follows.
[0029] if the color of a certain pixel p in a color picture is set to (Rp, Gp, Bp) -- **Rp-r** -- < -- T1 and

Gp-g -- < -- T1 and **Bp-b** -- < -- the value of N [rgb] is increased +one at the time of T1.

[0030] Next, the maximum Nmax in the several Ns same color pixel [rgb] for every color is calculated with the maximum extract means 203 of the number of same color pixels. the total number of pixels -- counting -- several pixels of all of the color picture inputted with the means 204 -- M is calculated. Nmax which searched for the ratio count means 205 with the maximum extract means 203 of the number of same color pixels, and the total number of pixels -- counting -- M for which it asked with the means 204 is inputted, and it asks for a ratio R by the formula of R=Nmax/M. Finally, the ratio comparison means 206 compares the threshold T2 and ratio R which were set up beforehand, and a color picture outputs the classification result which a color picture uses as a natural image at the time of an artificial image and R<=T2 at the time of R>T2.

[0031] Drawing 3 is the graph which showed ratio Nmax/M of the maximum of the number of pixels of the same color to the ratio R, i.e., the total number of pixels, stated by explanation of drawing 1 and drawing 2 about some same artificial images and natural images of a color as drawing 4 . As shown in drawing 3 , the clear difference appears in the ratio R by the artificial image and the natural image. If it follows, for example, the value of the threshold T2 in explanation of drawing 1 is set about to 0.15 to 0.2, it will become possible to classify the inputted color picture into an artificial image and a natural image.

[0032] In addition, in drawing 3 , the range of the value of the red (R) of a color picture, green (G), and each blue (B) color element is 0<=R<=255, 0<=G<=255, and 0<=B<=255, and the value of the threshold T1 for judging the same color is a graph at the time of being referred to as T1=2.

[0033]

[Effect of the Invention] As stated above, according to this invention, the inputted color picture can be appropriately classified into an artificial image and a natural image.

[Translation done.]

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TECHNICAL FIELD

[Field of the Invention] This invention relates to the approach and equipment which classify the image (it is called an artificial image) which men, such as an image (it is called a natural image), and an alphabetic character, a graphic form in which the color picture as which the color information on each pixel in an image was expressed with the numeric data photoed the actual sight with the camera, drew.

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PRIOR ART

[Description of the Prior Art] This kind of the color picture classification approach or equipment is needed in order to perform effectively processing which deletes color information from a color picture and is changed into monochrome image since a color picture is outputted to the equipment which can display or print only black and white.
[0003] for example, red (R) -- green -- the most general art changed into monochrome image from the color picture which is expressing the color of 1 pixel in the combination (R, G, B) of the value of (G) and each blue (B) color element is the approach of calculating brightness (Y) by the following fixed formulas from color information (R, G, B), and using as monochrome image with the value of the brightness.
[0004]
Although Y=0.299R+0.587G+0.114B, however such a simple approach have **** good for a natural image, if a color picture including an alphabetic character or a graphic form is changed into monochrome image by this approach, in spite of a different color, it is the same, or becomes the value of very near brightness, and may be changed into monochrome image with it difficult [to decipher the contents]. That is, since it is required from a natural image in many cases that an artificial image can decipher the alphabetic character contained in it and a graphic form, it is necessary to use the art to which monochrome image transformation processing was also suitable for the artificial image. In order to realize this, it is necessary to classify appropriately whether it is the artificial image which includes an alphabetic character and a graphic form for whether the inputted color picture is a natural image.
[0005] As a conventional approach a color picture classifies a natural image or an artificial image, the number of the colors currently used in the color picture is totaled, and there is the approach of classifying with a natural image, when the number is larger than the threshold defined beforehand, and classifying with an artificial image, when small. This approach is an approach of using the property in which there is probably only a small number of color in the artificial image which human being generally draws to very many colors existing by shading which changes smoothly into a natural image comparatively.

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EFFECT OF THE INVENTION

[Effect of the Invention] As stated above, according to this invention, the inputted color picture can be appropriately classified into an artificial image and a natural image.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, the image which includes an alphabetic character and a graphic form using a computer can be easily drawn now, and smooth gradation can be easily added now into an image by computer in recent years. The color picture containing such smooth gradation will contain the color from which many differ very much, and cannot classify appropriately simply whether it is a natural image and whether it is an artificial image only according to the number of the colors in a color picture. For example, drawing 4 is the graph which totaled the number of the colors which exist in those color pictures about some the artificial images and natural images of a color. An inclination rough in the number of the colors which exist in an image by the natural image and the artificial image like drawing 4 has high possibility of carrying out the classification which the image which cannot distinguish a certain thing also has and was mistaken by the classification of the color picture by this approach.
[0007] This invention solves this problem and makes it a technical problem to offer the approach and equipment with which a color picture classifies a natural image or an artificial image appropriately for color picture processing like transform processing from a color picture to monochrome image.

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MEANS

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, the color picture classification approach by this invention Total the number of the pixels in which the color information on each pixel in an image has the value which shows the same color based on the threshold T1 set up beforehand from the color picture expressed with the numeric data for every color, and it asks for the number of same color pixels. The maximum of said number of same color pixels is calculated, and it asks for the total number of pixels of said color picture, asks for the ratio of the maximum of said number of same color pixels to the total number of pixels of said color picture, and is characterized by classifying a color picture based on the comparison result of said ratio and the threshold T2 set up beforehand.
[0009] The procedure of the above-mentioned color picture classification approach by this invention totaling the number of the pixels in which the color information on each pixel in an image has the value which shows the same color based on the threshold T1 set up beforehand from the color picture expressed with the numeric data for every color, and asking for the number of same color pixels, The procedure of calculating the maximum of said number of same color pixels, and the procedure of asking for the total number of pixels of said color picture, The procedure of asking for the ratio of the maximum of said number of same color pixels to the total number of pixels of said color picture, As a program for performing a computer, the procedure of classifying a color picture based on the comparison result of said ratio and the threshold T2 set up beforehand is recordable on the record medium which can read this computer.
[0010] In order to solve the above-mentioned technical problem, moreover, the color picture classification equipment by this invention A means to input the color picture as which the color information on each pixel in an image was expressed with the numeric data, A means to total the number of pixels with the value which shows the same color based on the threshold T1 set up beforehand from said inputted color picture for every color, and to ask for the number of same color pixels, A means to calculate the maximum of said number of same color pixels, and a means to ask for the total number of pixels of said inputted color picture, It is characterized by having a means to compare a means to ask for the ratio of the maximum of said number of same color pixels to the total number of pixels of said color picture with said ratio and the threshold T2 set up beforehand, and to classify said inputted color picture.
[0011] In an artificial image, even if there is a gradation part, comparatively many pixels which have the completely same color like an alphabetic character, the color of the graphic form itself, or the color of a background will exist compared with the area of the whole image in many cases. On the other hand, since in the case of a natural image how depending on which the illumination light hits differs delicately even if there is a part into which the same color as a metaphor spread, each pixel of the part serves as a delicately different color, and possibility that the field where the completely same color is large exists in a natural image as a result becomes low. In this invention, it is not the number of the colors in a color picture using such a property. Total the number of pixels with the same color for every color, and when the rate of the number of pixels of a color with most pixels to the number of pixels of the whole image is

larger than the threshold set up beforehand, the color picture in an artificial image When small, by classifying into a natural image, a color picture is enabled to classify a natural image or an artificial image appropriately.

[0012]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained to a detail using drawing.

[0013] The flow chart of the example of 1 operation gestalt as the approach of this invention is shown in [example 1 of operation gestalt] drawing 1 .

[0014] The color picture classification approach by this invention is concretely explained using drawing 1 . In addition, in order to simplify explanation, a color picture presupposes that the color of 1 pixel is expressed in the combination (R, G, B) of the value of red (R), green (G), and each blue (B) color element.

[0015] (1) Input the color picture as which the color information on each pixel in an image was expressed with the numeric data (step 101).

[0016] (2) several [of the pixel judged in a threshold T1 based on the threshold T1 set up beforehand by carrying out counting of each pixel in a color picture about the color as follows to be the same color [rgb]] -- total N [rgb] for every color (step 102).

[0017] if the color of a certain pixel p in a color picture is set to (Rp, Gp, Bp) -- **Rp-r** -- < -- T1 and **Gp-g** -- < -- T1 and **Bp-b** -- < -- the value of N [rgb] is increased +one at the time of T1.

[0018] In addition, **Rp-r** etc. expresses the absolute value of the value of Rp-r.

[0019] (3) Calculate Maximum Nmax out of the several Ns pixel [rgb] for every color which totaled (step 103).

[0020] (4) Ask for the total number M of pixels of a color picture (step 104).

[0021] (5) Ask for the ratio R of the maximum Nmax of the number of same color pixels to the total number M of pixels as follows (step 105).

[0022] R=Nmax/M.

[0023] (6) Compare the threshold T2 and ratio R which were set up beforehand, and classify a color picture as follows (step 106).

[0024] At the time of R>T2, a color picture is classified into an artificial image and a color picture is classified into a natural image at the time of R<=T2.

[0025] in addition, the equipment according to memory and it required in case this invention processes the equipment which inputs a color picture, and a color picture -- and -- final -- a classification result -- a display -- or Based on the equipment according to the computer which was equipped with equipments, such as a display to output, and was equipped with the central processing unit which controls these hard disks, memory, a display, etc. based on the procedure which was able to be defined beforehand, or it It is possible to realize by giving and performing [control and] the object according to the processing program which described processing in the example of an operation gestalt shown by drawing 1 the approach thru/or the algorithm, or it to this computer. Here, in case a computer performs the object according to this processing program or it, it may be stored in the storage according to the floppy disk (FD) and magneto-optic disk (MO) which can perform read-out, and it.

[0026] The block diagram of the example of 1 operation gestalt as equipment of this invention is shown in [example 2 of operation gestalt] drawing 2 . 201 -- a color picture input means and 202 -- the number total means of same color pixels, and 203 -- the maximum extract means of the number of same color pixels, and 204 -- the total number of pixels -- counting -- as for a means and 205, a ratio count means and 206 are ratio comparison means.

[0027] Actuation of the color picture classification equipment by this invention is concretely explained using drawing 2 . In addition, in order to simplify explanation, a color picture presupposes that the color of 1 pixel is expressed in the combination (R, G, B) of the value of red (R), green (G), and each blue (B) color element.

[0028] First, a color picture is inputted with the color picture input means 201 of drawing 2 . Next, severalNs [rgb] of the pixel judged in the threshold T1 set up beforehand by the number total means 202

of same color pixels to be the same color [rgb] are totaled for every color as follows.
[0029] if the color of a certain pixel p in a color picture is set to (Rp, Gp, Bp) -- **Rp-r** -- < -- T1 and **Gp-g** -- < -- T1 and **Bp-b** -- < -- the value of N [rgb] is increased +one at the time of T1.
[0030] Next, the maximum Nmax in the several Ns same color pixel [rgb] for every color is calculated with the maximum extract means 203 of the number of same color pixels. the total number of pixels -- counting -- several pixels of all of the color picture inputted with the means 204 -- M is calculated. Nmax which searched for the ratio count means 205 with the maximum extract means 203 of the number of same color pixels, and the total number of pixels -- counting -- M for which it asked with the means 204 is inputted, and it asks for a ratio R by the formula of R=Nmax/M. Finally, the ratio comparison means 206 compares the threshold T2 and ratio R which were set up beforehand, and a color picture outputs the classification result which a color picture uses as a natural image at the time of an artificial image and R<=T2 at the time of R>T2.
[0031] Drawing 3 is the graph which showed ratio Nmax/M of the maximum of the number of pixels of the same color to the ratio R, i.e., the total number of pixels, stated by explanation of drawing 1 and drawing 2 about some same artificial images and natural images of a color as drawing 4 . As shown in drawing 3 , the clear difference appears in the ratio R by the artificial image and the natural image. If it follows, for example, the value of the threshold T2 in explanation of drawing 1 is set about to 0.15 to 0.2, it will become possible to classify the inputted color picture into an artificial image and a natural image.
[0032] In addition, in drawing 3 , the range of the value of the red (R) of a color picture, green (G), and each blue (B) color element is 0<=R<=255, 0<=G<=255, and 0<=B<=255, and the value of the threshold T1 for judging the same color is a graph at the time of being referred to as T1=2.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the flow chart showing the example of 1 operation gestalt as the approach of this invention.
[Drawing 2] It is the block diagram showing the example of 1 operation gestalt as equipment of this invention.
[Drawing 3] It is the graph which showed the ratio of the maximum of the number of pixels of the same color in the image to the total number of pixels of an image about some the artificial images and natural images of a color.
[Drawing 4] It is the graph which totaled the number of the colors which exist in the color picture currently used as the conventional color picture classification approach about some same artificial images and natural images of a color as drawing 3 .
[Description of Notations]
101-106 -- Step of processing
201 -- Color picture input means
202 -- The number total means of same color pixels
203 -- Maximum extract means of the number of same color pixels
the 204 -- all number of pixels -- counting -- a means
205 -- Ratio count means
206 -- Ratio comparison means

[Translation done.]

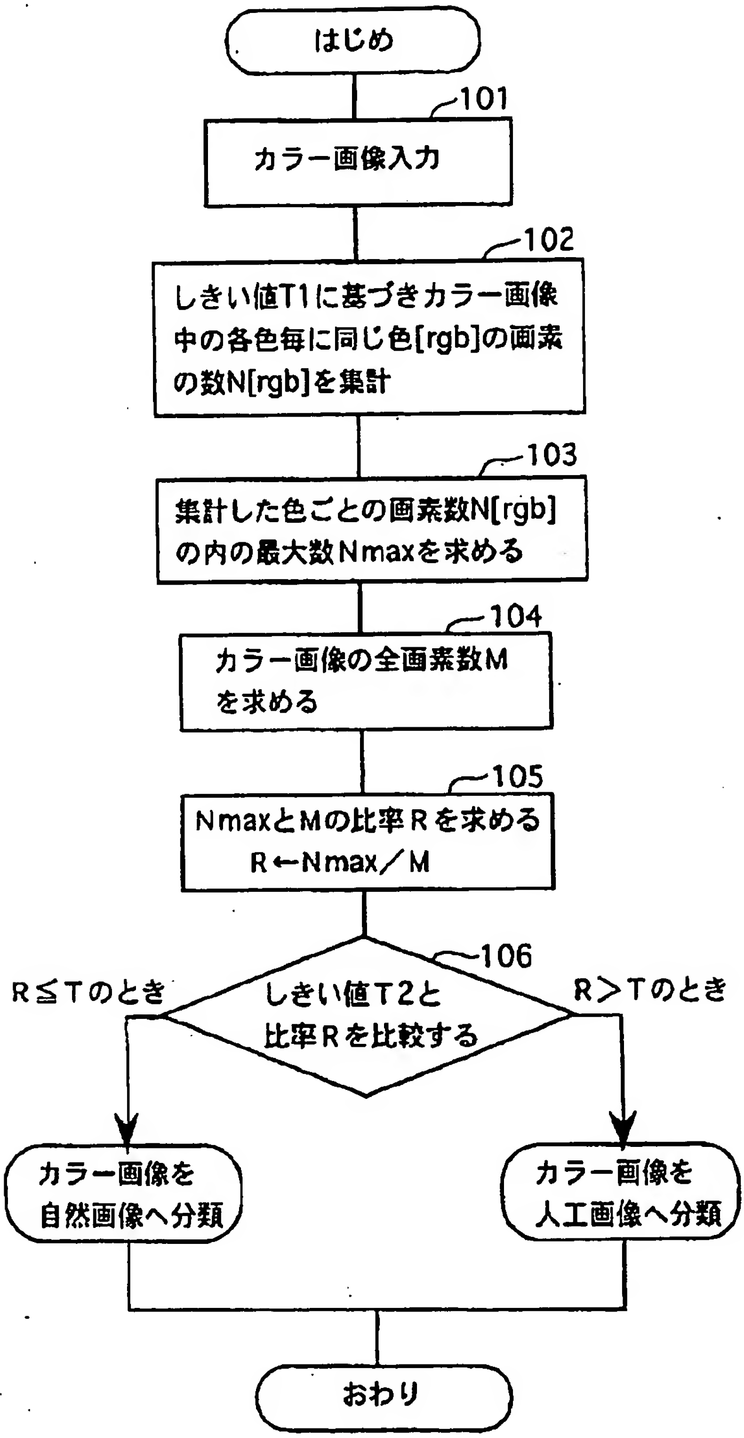
* NOTICES *

JPO and NCIPI are not responsible for any
damages caused by the use of this translation.

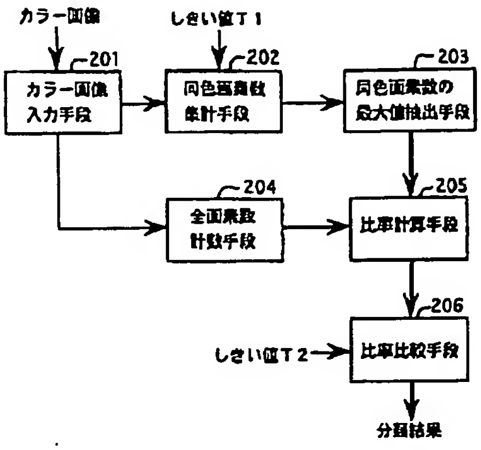
1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DRAWINGS

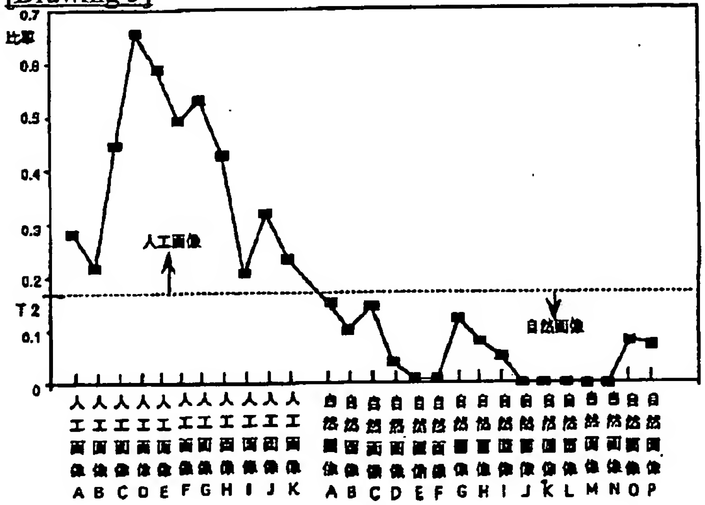
[Drawing 1]


はじめ
101
カラー画像入力
102
しきい値T1に基づきカラー画像中の各色毎に同じ色[rgb]の画素の数N[rgb]を集計
103
集計した色ごとの画素数N[rgb]の内の最大数Nmaxを求める
104
カラー画像の全画素数Mを求める
105
NmaxとMの比率Rを求める
R←Nmax／M
106
しきい値T2と比率Rを比較する
R≦Tのとき
R＞Tのとき
カラー画像を自然画像へ分類
カラー画像を人工画像へ分類
おわり

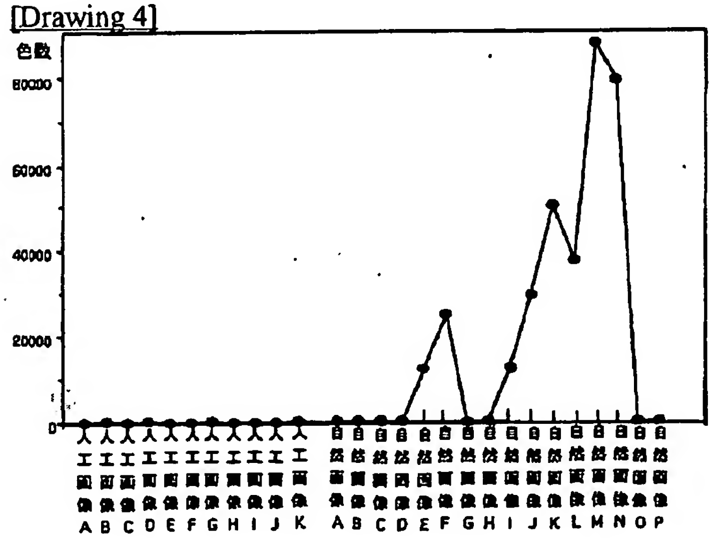
[Drawing 2]


カラー画像
しきい値T1
201
カラー画像入力手段
202
同色画素数集計手段
203
同色画素数の最大値抽出手段
204
全画素数計数手段
205
比率計算手段
206
しきい値T2
比率比較手段
分類結果

[Drawing 3]



[Drawing 4]



[Translation done.]